

REMARKS/ARGUMENTS

Claims 1-6, 8, 11-14 are active in the case. Reconsideration is respectfully requested.

The present invention relates to a process for the preparation of metal complexes with carbene ligands.

Claim Amendments

Claim 1 has been amended to delete the inappropriate limitation of R⁷ as not being hydrogen. This limitation in and of itself does not exclude imidazolium cations from the scope of Claim 1. Moreover, the removal of the phrase is supported by the disclosure at page 3, lines 4-8 of the text, wherein hydrogen is included as an R⁵⁻⁷ substituent. Thus support for the deletion of the phrase indicated by the Examiner is provided. The remaining proviso clause does excludes certain imidazolium cation containing compounds, in particular, those of McGuinness in which the cation reacts with a Group 10 element. The amendment made to the clause specifies the presence of Groups R³ and R⁴ in generic formula (III), which permits the imidazolium cation structure when the two groups are bonded together. The amendments to Claim 1 do not introduce new matter into the case. Entry of the amended claim is respectfully requested. No new issues are believed to have been raised by the amendments.

Claims 11 and 12 have been amended by specifying that the olefinic material, as a reactant, is an -- olefin -- and that the “reaction product of Claim 1” is a “metal complex.” It is believed that the amendments of these terms in the claims remove any question of indefiniteness about the terms. Further, with regard to the term “nucleophile” the meaning of this term is amply evident from the extensive discussion of telomerization starting at page 18 of the text to page 22. Many examples of such nucleophiles are mentioned on pages 19 and 20 of the specification. Accordingly, the issues raised under 35 USC 112 concerning these

terms are believed to have been overcome. Withdrawal of the rejections of the terms is respectfully requested.

The amendment to Claim 3 has been made to clarify that the component Z of formula (I) is a metal complex fragment.

Applicants note further that the structural formula shown for nitrogen-containing compound (VIII) in Claims 2 and 14 is erroneous in that group R⁷ was unintentionally omitted from the formula. Otherwise the exocyclic group containing Groups R⁵ and R⁶ are attached to a trivalent carbon atom which is clearly incorrect. The correct formula is shown on page 4, line 2 of the specification. Entry of the amendment is respectfully requested.

Claim Rejection, 35 USC 112, First Paragraph

Applicants remain of the opinion that the process language of Claim 1 is entirely sufficient and enabling of how to prepare a metal complex of a metal element selected from Groups 6 to 10 of the Periodic chart. The claim states that if a metal from one of these groups is reacted with one of the nitrogen containing compounds of formula (II) or (III), then a product is formed which at least is a combination of one or more of the nitrogen containing compounds and the Group 6 to 10 metal that is selected. The reaction is entirely enabled by the discussion in the specification in the beginning pages thereof.

The Examiner contends that the claims of the process are not enabled because there is no disclosure of a compound that is formed by the reaction of an “undisclosed” compound with a Group 6-10 metal with a compound of formula (II) or (III). Applicants contend to the contrary that the present claims are not required by U. S. patent law to show structural formulas of metal complexes containing one or more of the nitrogen-containing compounds of the indicated formulas in order to be enabling of the product that is produced. One of skill in the art is well aware that upon reaction of a Group 6 to 10 metal compound with one of

the unsaturated nitrogen containing compounds as set forth in Claim 1, a metal complex will form. That is all that is needed to be known about the complex. A disclosure of formula(s) of metal complexes with a compound of formula (II) or (III) is not essential to sufficiently enable the product metal complex of the claims. The fact is that no matter what complex of a given structure is formed by the reaction of a particular metal compound with a particular or specific nitrogen containing compound, the product that is formed will function in the role of a catalyst for telomerization of an olefin or in a number of other reactions of the type set forth in Claim 13. Accordingly, the enabling requirement of paragraph 112 is met by the present claims. Applicants in this matter refer to the decision by the court in Atlantic Thermoplastics Co. Inc. v Faytex Corp (970 F^{2nd} 834; 23 USPQ2d 1481). Here the Court stated that:

the PTO and CCPA acknowledged product by process claims as an exception to the general rule requiring claims to define products in terms of structural characteristics • • • The PTO and CCPA did not reason that the process was not a defining limit of the product. To the contrary, the process was the only way to define and limit -sum , to claim - the product.

The Examiner states that the *present claims* use “comprising” language *which could include additional elements*. While, of course, the term comprising opens the claims to additional features including additional elements in the preparation of the metal complex, this does not deny the fact that at a minimum a complex that is produced in the present invention must be formed of a nitrogen containing compound of either formula (II) or (III) and a Group 6-10 metal. Thus, the present process language adequately identifies the product complex that is produced. Accordingly, withdrawal of the rejection is respectfully requested.

As to the matter of the Examiner’s comments on the first paragraph on page 3 of the Office Action, applicants maintain that in the context of the presently claimed invention as described in the specification, the meanings of the terms “metal complexes,” “reacting” and complexes of metals of Groups 6 to 10 of the Periodic Table of the elements are clear on their

face. Specific structural formulae of metal complexes are not required in order for the skilled artisan to practice the invention.

Claim Rejection, 35 USC 102 & 103

Claim 14 stands rejected based on 35 USC 102 and 35 USC 103 in view of the disclosure of the McGuinness et al document cited of record in the case. This ground of rejection is respectfully traversed.

Applicants first point out that the nitrogen containing compound having formula (IX) is the only compound of the group of compounds having formulas (V) to (X) that is an imidazole-type compound (that is, the compound is in cationic form as a singly positively charged imidazolium cation). This formula, however, previously has been deleted from Claim 14. Thus, the cited reference neither anticipates nor obviates the invention as claimed.

The Examiner argues that the *compound of formula (VI) can tautomerize into the imidazolium compound of McGuiness*. That statement, however, is erroneous. Applicants point out that the ring system of the two-nitrogen atom containing structural formula (VIII) is in an oxidation state shown as having one internal (to the ring) double bond. The imidazole structural formula (IX), on the other hand, is in a higher ring oxidation state characterized by having two internal double bonds. A tautomeric shift, as proposed by the Examiner, does not change the oxidation state of a molecule. It merely represents a change in position of an atom (in most cases hydrogen) within a molecular structure, which does not represent a change in oxidation state of the structure. Thus, the group of five structural formulas in Claim 14 as presently claimed does not include an imidazole equivalent amongst the members of the group. Clearly, Claim 14 is free of the prior art. Withdrawal of the rejection is respectfully requested.

Claim Rejection, 35 USC 112, Second Paragraph

With respect to the rejection of Claims 11 and 12, applicants refer to their position as stated above that the questioned terms, either by amendment of some and no amendment to others, have clear meanings as set forth in the present specification. One of skill in the art has a clear understanding of what the claimed invention in its several embodiments encompasses.

Applicants note the Examiner's comment that *there is no reaction product in Claim 1*. To the contrary, Claim 1 clearly and unambiguously states therein that the reaction of a compound containing a Group 6 to 10 metal with a nitrogen containing compound results in a metal complex, i.e., the product of the reaction of the metal compound with a nitrogen containing compound having either formula (II) or (III). How therefore does Claim 1 not recite a "reaction product?"

As to the scope of the term "olefin" applicants refer the Examiner to the description on pages 15 to 17 of the specification for a comprehension of the scope of the term.

Applicants have taken note of the Examiner's view that Claim 1 lacks antecedent basis therein for a compound of formula (II) or (III), because of a lack of description in Claim 1 of how compound embodiments having either formula (II) or (III) are prepared. However, syntheses of compound types in Claim 1 are not necessary, primarily because many embodiments of the nitrogen containing compound are known compounds. Stated simply, the present claims are not an exercise in showing how embodiments of compounds having either formula (II) or (III) are prepared. Compound embodiments can be obtained from the chemical literature. What is novel is that the present process provides a means of obtaining active catalyst materials, which are in the form of complexes of a Group 6 to 10 metal with compound embodiments of formula (II) or (III), that are useful in a variety of different types of reactions as described in the specification. Thus, the present claims do not lack a required antecedence. Withdrawal of the rejection is respectfully requested.

It is believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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